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THIS NOTICE INFORMS RECIPIENTS THAT THE DOCUMENT IDENTIFIED BY THE NUMBER (AND REVISION LETTER) SHOWN IN BLOCK 4 HAS BEEN CHANGED. THE PAGES CHANGED BY THIS SCN BEING THOSE FURNISHED HERewith AND CARRYING THE SAME DATE AS THIS SCN. THE PAGES OF THE PAGE NUMBERS AND DATES LISTED BELOW IN THE SUMMARY OF CHANGED PAGES COMBINED WITH NON-LISTED PAGES OF THE ORIGINAL ISSUE OF THE REVISION SHOWN IN BLOCK 4 CONSTITUTE THE CURRENT VERSION OF THIS SPECIFICATION.			
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International Ground System Specification Document

International Space Station Program

APRIL 26, 1996
Incorporates SCN 005



*Russian
Space
Agency*



Canadian Space
Agency

Agence spatiale
canadienne



agenzia spaziale italiana
(Italian Space Agency)



National Aeronautics and Space Administration
International Space Station Program
Johnson Space Center
Houston, Texas



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E1. SCOPE

This specification establishes the performance, design, development, and verification requirements for the Russian Segment of the International Space Station. Requirements in Section 3.2.1 define the performance level of the Russian Segment as a whole. Requirements in Section 3.7 define the performance of the elements which comprise the Russian Segment. These performance requirements are derived from the functional decomposition, a hierarchical breakdown of capabilities and subtiered functions which the Russian Segment will perform.

Requirements in Section 3.2.1 are based on the top level capabilities of the functional decomposition and have been grouped into states and modes. Requirements in section 3.7 are based on functions which are subtiered to the parent capabilities defined in 3.2.1. Requirements in Sections 3.2.2 through 3.6 are constraints with which the Russian Segment must comply. The performance requirements herein are applicable during nominal operations, maintenance, or contingency events. This specification is applicable to the Permanent Human Capability (PHC) stage of the International Space Station.

Each element level requirement, unless otherwise noted, represents the required performance of the element from the time of its activation, or integration into the Space Station, through to the stage of permanent human capability. This document also identifies incremental performance requirements. Incremental performance requirements are defined as those unique requirements necessary to support the Russian Segment prior to permanent human capability. This version is based upon the 3-31-94 release of the System specification for the Space Station.

E1.1 Identification.

This specification is for the Russian Segment. The requirements of this specification only apply to the Russian elements.

AGREED.

E1.2 System overview.

The purpose of the Russian Segment (RS) is to provide the following services and capabilities: guidance, navigation and control, propulsion services; electrical power generation, storage, distribution and control; communications and data links to ground support facilities; environmental control and life support; thermal control and heat rejection; data processing, storage and transportation; housekeeping; personal hygiene; food preparation and storage; extravehicular activity; payload utilities; robotic systems; crew and cargo resupply services; delivery and return of crew including unplanned crew return capability; research facilities; ground based resources necessary to process Space Station hardware for launch and return; maintenance of station and payload operations plans and procedures; and real-time operations command, control, and monitoring support to the Space Station. The ground facilities required to support the orbiting facility are included as a part of the Russian Segment.

AGREED

E2. APPLICABLE DOCUMENTS**E2.1 Government documents.****E2.1.1 Specifications, standards, and handbooks.**

NOT APPLICABLE.

E2.1.2 Other Government documents, drawings, and publications.

The following other government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the exact issue shown applies to this segment specification.

ISSP 54501	International Ground System Integration, Verification & Test Management Plan	SCN 005
NASA/RSA		
SSP 50094	NASA/RSA Joint Specifications/Standards Document for the ISSA Russian Segment	
SSP 42121 ICD	U.S. On-orbit Segment Pressurized Mating Adapter-1 to Russian Segment FGB Interface Control Document. August 26, 1994	
SSP 50097 ICD	SSMB to RS Software ICD	
SSP TBD ICD	This set of ICDs defines the interfaces between the Russian Segment and the USGS	

E2.2 Non-Government documents.

NOT APPLICABLE.

E2.3 Order of precedence.

In the event of a conflict between the text of this specification and the references cited herein, the text of this specification takes precedence. Nothing in this specification, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

Test – this is a method whereby requirements are verified by measurement during or after the controlled application of functional and environmental stimuli. Pass or fail criteria or acceptance tolerance bands will be specified prior to conduction the test. This method ensures that the actual performance of tested equipment or systems meets or exceeds specifications.

Demonstration – this is a method used for determination of properties of an end item or component by observation of its operation or characteristics. It is used with or without special equipment or instrumentation to verify characteristics such as:

- Operational performance
- Human engineering features
- Maintainability
- Accessibility
- Transportability
- Built in Test/Built in Test equipment
- Display data

Interface verification by demonstration will use flight hardware and software, simulators, mockups, or interface tooling.

Inspection – this is a method of verifying physical characteristics that determines compliance of the item with requirements and may use standard methods such as visuals, gauges, etc. Hardware may be inspected as follows:

- Construction
- Workmanship
- Physical condition
- Specification and/or drawing compliance

Pretest and post test inspections will be performed for all tests. Inspection may be used to confirm that ground/flight software complies with applicable coding standards.

Analysis – this is a method of verification used when flight or actual operation conditions can not be simulated adequately on the ground. It is used when it is not cost effective to test. It is also used when necessary to confirm software compliance with coding standards. The Analysis verification method can be used during the following:

- Engineering analysis
- Mathematical modeling
- Computer simulations
- Similarity assessments
- Analytical assessments
- Utilizes proven analytical techniques and tools

Analysis can be used to determine closure of verification activities at lower levels of assembly.

AGREED.

E4.2.2 Responsibility for verification.

Unless otherwise specified, RSA is responsible for the performance of all verification activities specified within this document. Russian verification reporting requirements are defined in SSP 54501, International Ground System Integration, Verification & Test Management Plan.

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AGREED.

E4.3 SYSTEM REQUIREMENTS**E4.3.1 System definition.****E4.3.2 Characteristics.****E4.3.2.1 Performance characteristics.****E4.3.2.1.1 State: Perform mission – habitable.**

Verification requirements not applicable.

E4.3.2.1.1.1 Mode: Standard – habitable.

Verification requirements not applicable.

E4.3.2.1.1.1.1 Support on-orbit to ground communication.**E4.3.2.1.1.1.2 Capability: Provide data for uplink. (RGS)**

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.2.1.1.1.3 Capability: Support downlinked data (RGS).

- a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.
- b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

- c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.2.1.1.1.4 Support Ground Mission Operations.**E4.3.2.1.1.1.5 Capability: Support on-orbit operations.**

- a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.
- b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

- c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.2.1.1.2 Mode: Proximity – habitable.

Verification requirements not applicable.

E4.3.2.1.1.2.1 Capability: Mission planning – rendezvous and docking.**E4.3.2.1.2 State: Support mission.**

Verification requirements not applicable.

E4.3.2.1.2.1 Mode: Ground processing.

Verification requirements not applicable.

E4.3.2.1.2.1.1 Support Prelaunch and Postlanding Operations.

Support prelaunch and postlanding operations shall be verified by analysis. The analysis shall be based on ground operations analysis, segment level qualification results and Space Station configuration data. The analysis shall be considered successful when the data shows that the planned number of flights can be accommodated.

AGREED

E4.3.2.1.2.1.2 Capability: Load/Unload cargo items.

Load/Unload cargo items shall be verified by analysis. The analysis shall be based on ground operations analysis, segment level qualification results and Space Station configuration data. The analysis shall be considered successful when it is shown that the cargo items defined can be loaded in the specified time frame.

AGREED

E4.3.2.1.2.1.3 Support system checkout and monitoring.

Support System Checkout and monitoring shall be verified by analysis. The analysis shall be based on segment level qualification results and Space Station configuration data. The results shall be considered successful when it is shown that all active systems and interfaces can be checked out prior to launch.

AGREED

E4.3.2.1.2.2 Mode: Personnel preparation.

a. No verification is required for ground equipment (HW and SW) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.2.1.2.2.1 Support personnel training.

TBD

E4.3.2.1.2.2.2 Reserved.**E4.3.2.1.2.2.3 Reserved.****E4.3.2.1.2.2.4 Reserved.****E4.3.2.1.2.3 Mode: Operations planning.**

a. No verification is required for ground equipment (HW and SW) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.2.1.2.3.1 Perform increment planning.**E4.3.2.1.2.3.2 Capability: Perform resupply/return planning.**

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.2.1.2.3.3 Capability: Develop increment operations planning products.

- a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.
- b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

- c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.2.1.2.3.4 Capability: Develop weekly planning products.

- a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.
- b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

- c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.2.1.2.3.5 Capability: Perform real time planning support.

- a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.
- b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

- c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.2.1.2.3.6 Develop and maintain procedures.**E4.3.2.1.2.3.7 Capability: Develop procedures.**

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.2.2 Reliability.**E4.3.2.2.1 Failure Tolerance.**

TBD

E4.3.3 Design and construction.**E4.3.4 Computer resource requirements.****E4.3.5 Logistics.****E4.3.6 Reserved.****E4.3.7 Characteristics of major functional elements.****E4.3.7.1 Soyuz Vehicle.****E4.3.7.1.1 Capabilities.****E4.3.7.1.1.1 Support crew delivery and return.****E4.3.7.1.1.1.1 Return mission.****E4.3.7.1.1.1.2 Ground support to flight operations.**

E4.3.7.2 Russian ground segment.**E4.3.7.2.1 Purpose.**

Verification requirements not applicable.

E4.3.7.2.2 Description.

Verification requirements not applicable.

E4.3.7.2.3 Capabilities.**E4.3.7.2.3.1 Space station system performance analysis.****E4.3.7.2.3.1.1 Analyze operations performance.**

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.1.2 Manage station configuration.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.1.3 Manage station resources.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.1.4 Manage station maintenance.

No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

AGREED

E4.3.7.2.3.1.5 Manage station systems inventory.

No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

AGREED

E4.3.7.2.3.2 Support on-orbit operations**E4.3.7.2.3.2.1 Monitor and assess space station operations.**

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.2.2 Execute on-orbit station operations.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian

side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.2.3 Execute ground operations.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.3 Provide data for uplink.

E4.3.7.2.3.3.1 Acquire data for uplink.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.3.2 Transfer data intended for station.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.3.3 Prepare data for uplink to on-orbit station.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.3.4 Transmit data for uplink.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

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AGREED

E4.3.7.2.3.3.5 Automated rendezvous and docking uplink capability.

TBD

E4.3.7.2.3.3.6 Automated rendezvous and docking downlink capability.

TBD

E4.3.7.2.3.4 Support downlinked data.

E4.3.7.2.3.4.1 Receive downlinked data.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.4.2 Prepare downlinked data for ground use.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

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AGREED

E4.3.7.2.3.4.3 Reserved.**E4.3.7.2.3.4.4 Record downlinked data.**

No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

AGREED

E4.3.7.2.3.4.5 Reserved.**E4.3.7.2.3.4.6 Playback recorded flight-ground data.**

No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

AGREED

E4.3.7.2.3.4.7 Distribute data on ground.

a. No verification is required for ground equipment (HW and SW) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.5 Training.**E4.3.7.2.3.5.1 Basic training.**

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.5.2 Advanced training.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.5.3 Increment specific training.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.5.4 Proficiency training.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

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AGREED

E4.3.7.2.3.5.5 Onboard training.

No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

AGREED

E4.3.7.2.3.6 Reserved.**E4.3.7.2.3.6.1 Reserved.****E4.3.7.2.3.6.2 Reserved.****E4.3.7.2.3.6.3 Reserved.****E4.3.7.2.3.6.4 Reserved.****E4.3.7.2.3.7 Reserved.**

E4.3.7.2.3.7.1 Reserved.

E4.3.7.2.3.7.2 Reserved.

E4.3.7.2.3.8 Develop increment operations planning products.

E4.3.7.2.3.8.1 Support integration of increment operations planning products.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.8.2 Develop tactical increment planning products

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase I (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.9 Develop weekly planning products.

E4.3.7.2.3.9.1 Develop user weekly operations planning products.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian

side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.9.2 Develop station weekly operations planning products.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.9.3 Develop integrated weekly operations planning products.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.10 Perform real-time planning support.**E4.3.7.2.3.10.1 Perform user payload operations real-time planning support.**

No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

AGREED

E4.3.7.2.3.10.2 Perform station operations real-time planning support.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.10.3 Perform integrated real-time planning support.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.7.2.3.11 Develop procedures.**E4.3.7.2.3.11.1 Create procedures.**

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.11.2 Validate procedures.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian

side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.11.3 Revise procedures.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.11.4 Procedure configuration control.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

AGREED

E4.3.7.2.3.11.5 Transfer procedures.

a. No verification is required for ground equipment (H/W and S/W) functions which have been demonstrated in previous Russian space programs or in ISSA Phase 1 (Shuttle/Mir) missions.

b. New Ground System functions that are strictly within the RGS, and that do not require interfaces with the ISS elements outside of the Russian Segment, shall be verified by the Russian side through standalone verification based on test procedures and methods commonly used in Russia.

SCN 005

c. New ground equipment functions which require interfacing with ISSA elements outside the Russian Segment (including US ground or USOS interfaces) shall be verified by ground tests. Test verification is achieved by successful completion of the tests with positive results.

AGREED

E4.3.8 Precedence.

E5. PREPARATION FOR DELIVERY